The Claims

1. A dispensing tip for use with precision dispensing apparatus for delivering controlled amounts of viscous fluid to a selected location comprising:

a) a body having an inlet at one end adapted for connection in fluid communication with precision dispensing apparatus and having an outlet at another end of the body;

b) a fluid conducting passage in the body for connecting the inlet to the outlet, the passage having a first portion converging in a direction immediately from the inlet to an intermediate location in the body and a second portion of constant diameter extending from the intermediate location to the outlet;

c) so that the passage conducts fluid from the inlet to the outlet in a continuous and uninterrupted manner; and

d) wherein the body has a longitudinal axis and the first and second portions extend along the axis and wherein the diameter of a drop of viscous fluid leaving the outlet is directly proportional to the ratio of the axial length of the second portion to the axial length of the first portion.

2. A dispensing tip according to claim 1, wherein the second portion of the passage has a diameter in a range from about 0.003 inch to about 0.030 inch.

3. A dispensing tip according to claim 1, wherein the body is of ceramic material.

4. A dispensing tip according to claim 1, wherein the body is of injection molded ceramic material.

5. A dispensing tip according to claim 1, wherein the body is of injection molded zirconia ceramic material.

B2

6. A dispensing tip according to claim 1, further comprising a protective housing.

7. A dispensing tip according to claim 6, further including a standoff member extending from the housing for contacting a surface to which fluid is to be dispensed for spacing the outlet of the tip from the surface.

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9. A dispensing tip for use with precision dispensing apparatus for delivering controlled amounts of fluid to a selected location comprising:

B3

a) a body of ceramic material having an inlet at one end adapted for connection in fluid communication with precision dispensing apparatus and having an outlet at another end of the body; and

b) a fluid conducting passage in the body for connecting the inlet to the outlet, the passage being shaped to conduct fluid from the inlet to the outlet in a continuous and uninterrupted manner, said passage having a

portion converging in a direction immediately from the inlet and extending toward the outlet.

10. A dispensing tip according to claim 9, wherein the body is of injection molded ceramic material.

11. A dispensing tip according to claim 9, wherein the body is of injection molded zirconia ceramic material.

12. A dispensing tip according to claim 9, wherein the outlet has a diameter in the range from about 0.003 inch to about 0.030 inch.

13. A method of precision dispensing controlled amounts of fluid to a selected location comprising:

B3

a) providing a dispensing tip having an inlet for receiving fluid from precision dispensing apparatus, an outlet for discharging fluid to the location and a passage between the inlet and outlet shaped to define a continuous and uninterrupted fluid flow from the inlet to the outlet;

b) introducing fluid to the inlet of the dispensing tip;

c) funnelling the flow of fluid from the inlet toward the output;

d) transitioning the flow to a constant cross-section flow into the outlet; and

e) discharging the fluid from the outlet to the location in a body of fluid having a dimension

B3

in the range from about 0.003 inch to about 0.030 inch.

14. A dispensing tip according to ~~claim 9, in~~ combination with a protective housing.

15. A dispensing tip according to claim 14, further including a standoff member extending from the housing for contacting a surface to which fluid is to be dispensed for spacing the outlet of the tip from the surface.

B4

16. A dispensing tip according to claim 9, wherein the body has a longitudinal axis, the converging portion of the passage being a first passage portion, there being a second passage portion extending between the first passage portion and the outlet, the first and second passage portions extending along the axis and wherein the diameter of a drop of fluid leaving the outlet is directly proportional to the ratio of the axial length of the second passage portion to the axial length of the first passage portion.